

February 2014

Energy News

Energy News Overview

With continued gridlock in Congress the Obama administration has signaled that it will pursue energy efficiency and greenhouse gas reduction strategies through executive action. Last week it announced that a second round of rulemaking covering fuel efficiency measures for medium and heavy duty trucks (vehicles with gross weight ratings from about 10,000 to 100,000 pounds) would begin immediately with the goal of having rules finalized by the EPA and Dept. of Transportation by 2016: see article on page 6. In 2011 the administration established the first fuel efficiency standards for medium and heavy duty trucks, which are being phased from 2014 through 2018. The phase one standards increase efficiency of these vehicles by about 18 percent. The administration has also directed the EPA to establish a draft regulation for greenhouse gas emission standards for existing power plants and heavy industry by June 1 2014. The draft rule will likely be very contentious, but will also offer a very large degree of compliance flexibility for states and utilities; allowing for cap and trade programs or carbon taxes, additional energy efficiency measures, application of smart grid technology, and additional renewables to offset emissions from existing facilities. The EPA is in the process of finalizing emission regulations for new power plants. See article on page 5.

Continued cold weather covering the eastern half of the country has boosted demand for electricity natural gas, propane and fuel oil. Inventories for natural gas and propane are 35 and 25 percent below their five year winter averages. Prices for the two fuels have risen by roughly 50 percent this winter. Even prices in Washington state, which has had a mild winter, have been affected. See articles on pages 5 and 6.

Tesla announced plans for a so called gigafactory, which would make battery packs for its future model X crossover vehicle, the “budget” model E sedan and the model S sedan update. Initial reports suggest that the facility will have the capacity to produce 500,000 battery packs a year by 2020 and at prices initially 30 percent lower than current prices. Tesla has several objectives for this factory: lowering battery costs to make its vehicles more cost competitive, securing a supply for a key component of their electric vehicles, and broadening their business model beyond the automotive sector into energy storage. The factory will be the largest of its kind in the world, cost 5 to 6 billion dollars to create and employ 6,000 workers. It will likely be located in the US Southwest (thank you Mr. Musk for not offshoring this part of the business). The announcement caused a jump in Tesla stock price and market capitalization—at \$30 billion now.

The Washington Capital campus had an electric vehicle show and tell day, where the new BMW i3 was the star of the show. The carbon fiber for the i3 is prepared at a facility located in Moses Lake. See event description on page 2 of this newsletter.

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What's Happening in the Energy Office

Renewable projects are earning the “evergreen tag” under Washington’s clean energy law

—Glenn Blackmon, glenn.blackmon@commerce.wa.gov or (360) 725-3115

An increasing number of renewable projects now carry the “evergreen” version of a green tag, showing that electricity from the projects qualifies under Washington’s clean energy portfolio standard. Renewable energy credits from these projects will include a designation that they may be used by Washington utilities under I-937, the Energy Independence Act. The state energy office began offering evergreen tags in June 2013 and has designated projects in four states powered by wind, biomass and landfill gas. The Washington tag is optional for project owners, but Commerce believes the Washington indicator encourages development of clean energy projects by helping owners and developers highlight their eligibility in Washington. For more information visit: <http://commerce.wa.gov/wregis>. Follow on Twitter @WASateCommerce to get notice of applications and approvals.

Commerce Co-Sponsors Ride & Drive Event on Capital Campus

Rain held off as over a dozen electric vehicles were showcased February 25 at a ride and drive event co-sponsored by Western Washington Clean Cities, Department of Commerce, and WSDOT. The goal of the event was met by providing Legislators, agency heads, fleet managers, and interested state employees access to a variety of electric vehicles. These included the Nissan Leaf, Chevy Volt, and Ford’s Fusion Energi & C-Max Energi—all included in the recently awarded state contract. There was also BYD’s electric bus and crossover SUV, a Chevy Malibu converted by University of Washington students, and the BMWi3. Richard Locke, Executive Director of Commerce’s Office of Economic Development and Competitiveness, and Stephanie Meyn, Western Washington Clean Cities, welcomed folks and briefly described the benefits of vehicles as a slow parade of electric vehicles glided silently by. Attendees were able to take a variety of electric vehicles out for a spin and state employee EV Ambassadors, including our own Peter Moulton, were on hand to discuss their experience as electric vehicle owners.

The “dance card” for the BMWi3 filled up quickly. This was the vehicle’s debut in the State of Washington. Carbon fiber in the body was produced as a joint venture between BMW and the SGL Group in Moses Lake, and is a key factor keeping its weight down to maximize range.

Rep. Jeff Morris driving the BMW i3



Senator Andy Billig with the BMW i3

Electricity, Petroleum & Natural Gas Prices

Energy Price Overview

Cold temperatures in many parts of the country this February boosted spacing heating demand for electricity, natural gas, propane and distillate. Henry Hub natural gas spot prices averaged over \$6 per MMBtu for the month, a sustained price not seen in six years. Pipeline constraints and reduction in stored natural gas contributed price spike. Nationally heating oil prices averaged about \$4.2 per gallon about 15 cents above last year. Due to greater pipeline takeaway capacity to the Gulf coast the US benchmark West Texas Intermediate crude oil moved up to \$103 per barrel in February, but international oil prices remained the same at \$108.

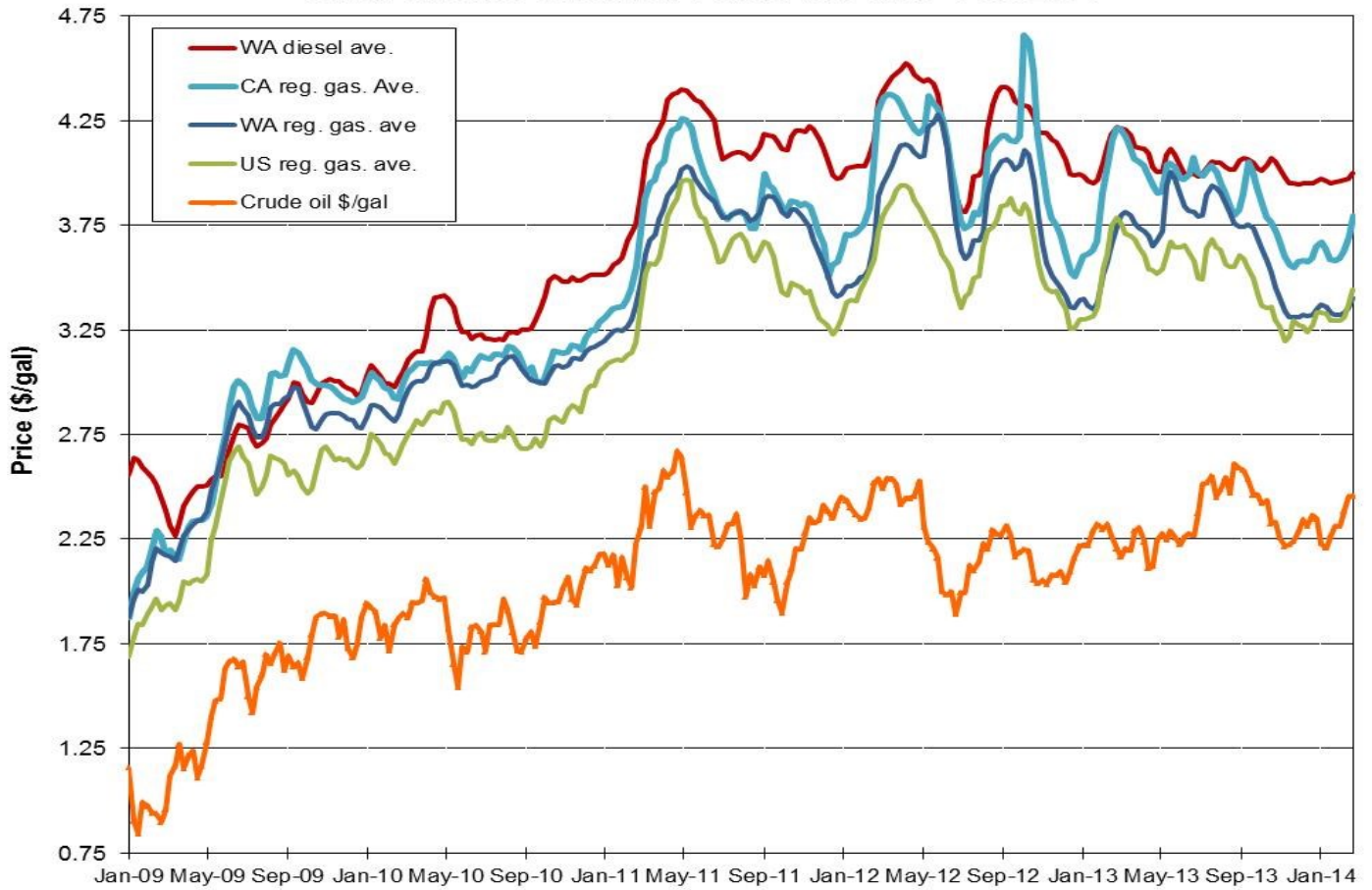
After a long period of price stability retail fuel prices began to rise. During February U.S. gasoline and diesel prices averaged \$3.35 and \$3.98 per gallon in February up 5 and 8 cents respectively. Washington state gasoline and diesel prices averaged \$3.37 and \$4.00 per gallon only slightly higher than last month. State gasoline and diesel prices are 33 and 20 cents less than last year at this time. The differential between the average national and Washington state (per gallon) price for gasoline and diesel is only a few cents per gallon instead of the typical 15 to 20 cents.

The price for month ahead NYMEX natural gas rose by nearly a dollar compared to last month to \$5.29 per MMBtu. For several days the Henry Hub spot price was above \$8 per MMBtu. The price increase is the result of cold weather in the East and Midwest and below average natural gas storage inventories. Locally natural gas spot price at Kingsgate was \$6.68 per MMBtu, or nearly \$2 above last months average. Sumas prices averaged \$5.58 per MMBtu. Nationally there was a moderate natural gas storage draw of 95 Bcf last week. Gas storage levels last week were well below normal at 1,348 Bcf about 34.5% below the 5-year storage average. Gas storage level in the West is running 31.3% below the 5-year average.

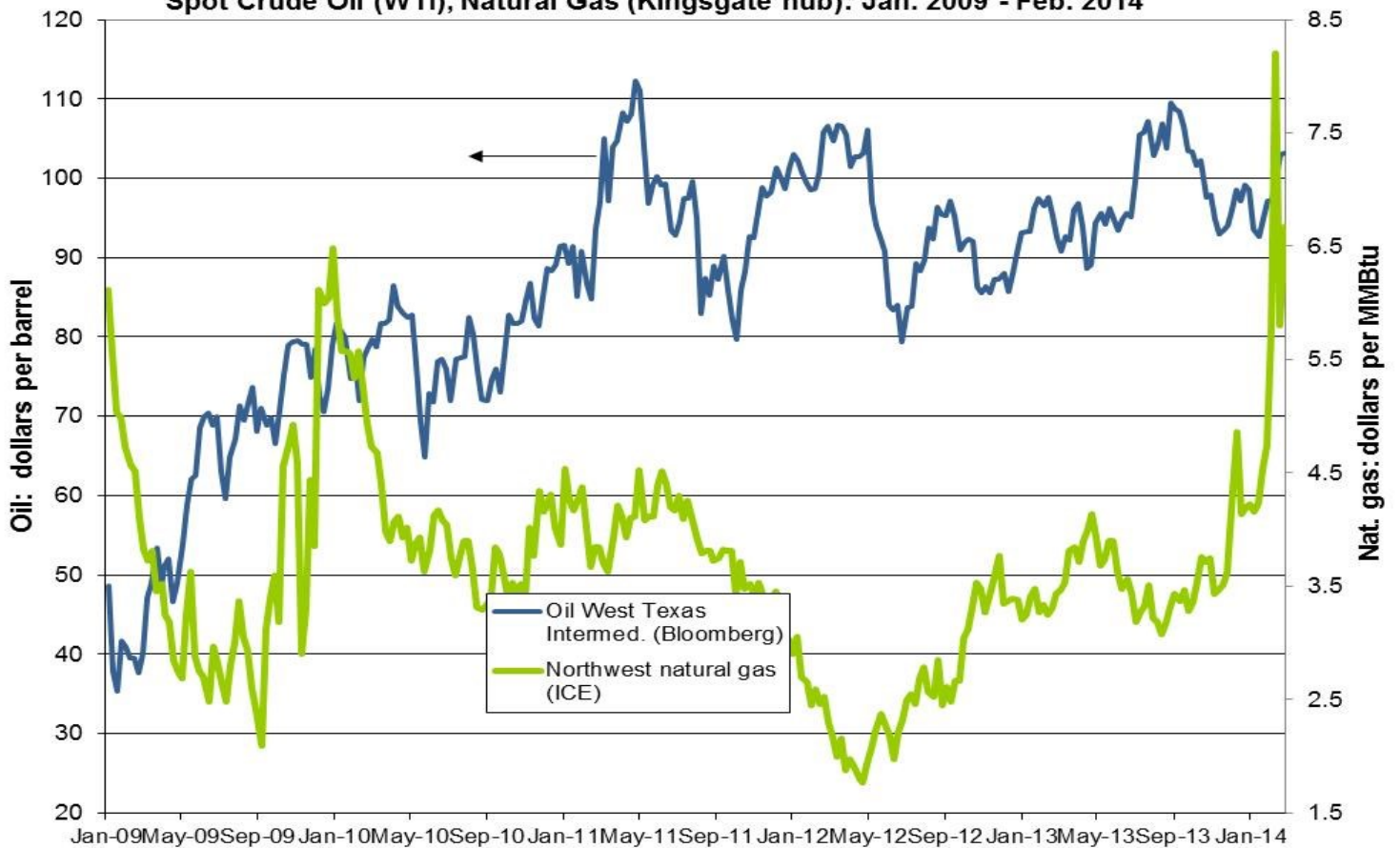
Regional electricity daily average prices spiked to over \$315 per MWh during the cold snap in early February: the Mid C monthly average spot price was \$80.8 per MWh versus \$40.2 for the previous month. Hydropower generation was about 15 percent lower than the 5-year average. Thermal generation resources, which are more expensive to operate, have been called on to make up the shortfall.

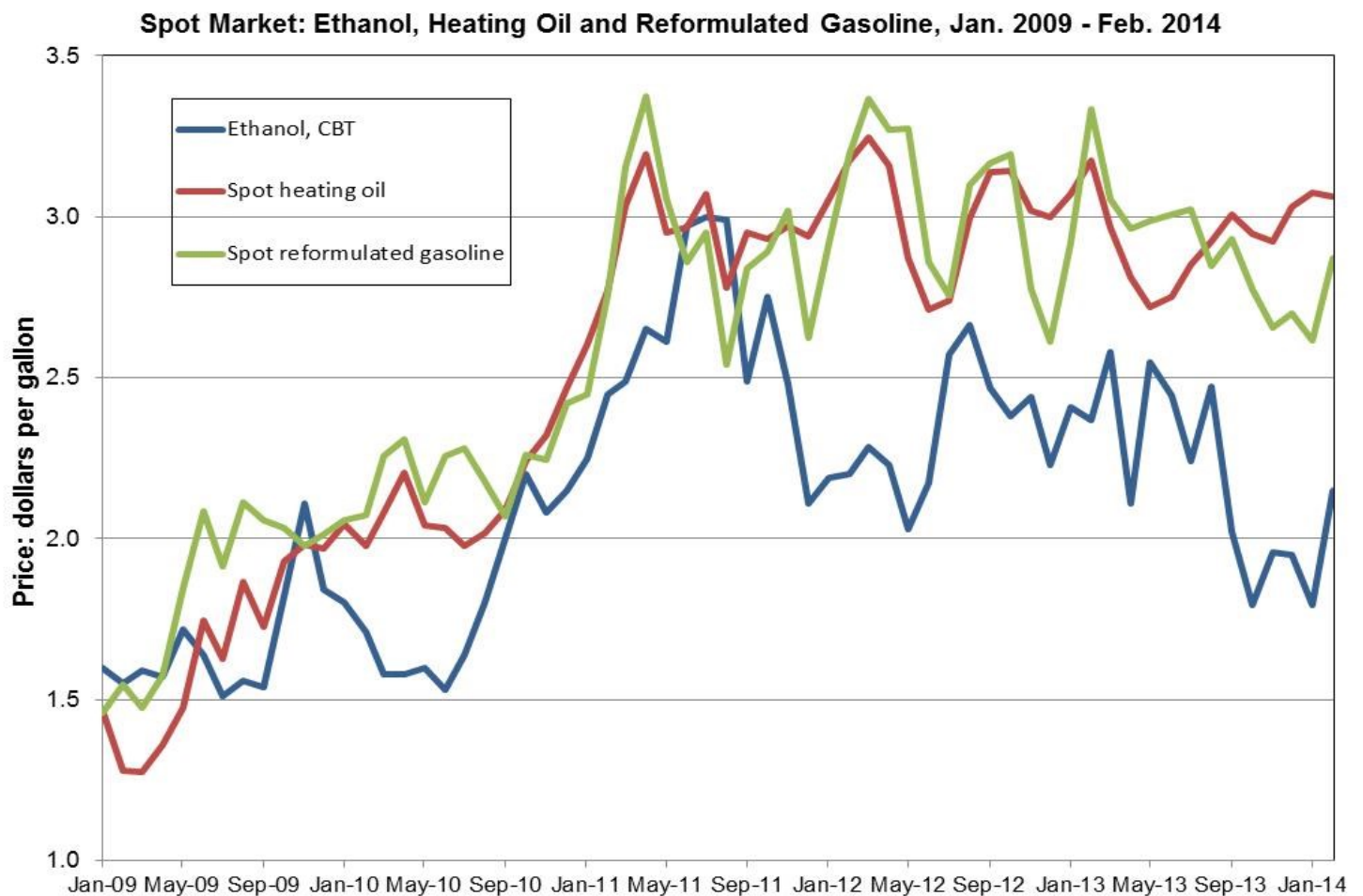
| Energy Price Summary | Current | Month Ago | Year Ago |
|---|-----------------------|-------------------------------|--------------------------------|
| Monthly Range at Mid-C (Peak: \$ per MWh) | 45-315 | 32.5-47 | 21-36 |
| Average Mid C price (Peak hours \$ MWh) | 80.8 | 40.2 | 29.1 |
| Electricity WA Retail: Dec_ (cents/kWh) | 7.29 | 7.03 | 6.93 |
| Natural gas Kingsgate spot price (next day: \$ per million BTU) | 6.68 | 4.74 | 3.44 |
| Natural gas Sumas futures price (next month \$ per million BTU) | 5.58 | 4.87 | 3.44 |
| Natural gas futures (NYMEX next month: \$ per million BTU) | 5.29 | 4.38 | 3.29 |
| E85 (national average: \$ per gallon gasoline) | 3.73 | 3.67 | 4.40 |
| Ethanol (CBT next month contract: \$ per gallon) | 2.15 | 1.79 | 2.37 |
| Corn (CBT next month contract: \$ per bushel) | 4.52 | 4.48 | 6.95 |
| Petroleum, West Texas Intermediate futures (\$ per barrel) | 103.2 | 97.1 | 92.6 |
| Seattle gasoline price (\$ per gallon) | 3.45 | 3.40 | 3.83 |
| Gasoline futures (NYMEX next month: \$ per gallon) | 2.77 | 2.67 | 2.87 |
| State diesel price (\$ per gallon) | 4.00 | 3.95 | 4.22 |
| Heating oil futures (NYMEX next month: \$ per gallon) | 3.07 | 3.00 | 2.99 |
| U.S. residential propane price report (reported Oct.-Mar.) | 3.48 | 4.01 | 2.49 |
| Clean Cities: Alternative Fuel Price Report, Oct. 2013 | US Avg current | West Coast current qtr | West Coast last qtr avg |
| Ethanol E85 (\$ per gas gallon equiv.) | 4.29 | 4.61 | 4.79 |
| Biodiesel B20 (\$ per diesel gallon equiv.) | 4.10 | 4.35 | 4.21 |
| Biodiesel B99-100 (\$ per diesel gallon equiv.) | 4.60 | 4.84 | 4.81 |
| Compressed Natural Gas (\$ per gas gallon equiv.) | 2.09 | 2.31 | 2.43 |
| Propane (\$ per gas gallon equiv.) | 3.86 | 4.22 | 4.13 |

Retail Gasoline and Diesel Prices: Jan. 2009 - Feb. 2014



Spot Crude Oil (WTI), Natural Gas (Kingsgate hub): Jan. 2009 - Feb. 2014





Energy Headlines - If you only have time to read a few articles—read these.

As Decision Looms on SolarWorld Trade Case, Not All Solar Companies Welcome China Fight. Oregonian.
http://www.oregonlive.com/business/index.ssf/2014/02/as_decision_looms_on_solarworl.html

Washington State Electric Car Charging Network at Standstill after Bankruptcy. KING-TV.
<http://www.king5.com/news/local/EV-car-charging-network-at-standstill-after-bankruptcy-246649381.html>

EPA staff struggling to create pollution rule. New York Times, Feb. 4.
<http://www.nytimes.com/2014/02/05/us/epa-staff-struggling-to-create-rule-limiting-carbon-emissions.html>

U-S Army Corps of Engineers Plans Narrower Review of Washington Coal-Export Plan. Associated Press.
<http://www.columbian.com/news/2014/feb/18/corps-narrower-review-washington-coal-export-plan/>

Washington State Legislature to Study if State Should Re-Examine Nuclear Power. KING-TV. <http://www.king5.com/news/local/Legislature-to-study-whether-Washington-should-re-examine-nuclear-power-245465461.html>

Midwest Propane Shortages Cause Price Increases in Eastern Washington. KNDO/KNDU-TV.
<http://www.nbcrighnow.com/story/24624395/midwest-propane-shortages-cause-price-increases-in-eastern-washington>

Tesla Unveils \$5 Billion Plan for Massive 'Gigafactory' to Manufacture Batteries. San Jose Mercury News.
http://www.mercurynews.com/rss/ci_25234367

Energy Efficiency Programs May Have Caused Decline in U-S Electricity Sales. Environmental Leader.
<http://www.environmentalleader.com/2014/02/26/energy-efficiency-programs-may-have-cause-decline-in-us-electricity-sales-aceee-says/>

Energy Headlines—continued

Climate change

Billionaire Environmentalist Plows Ahead with Global Warming Campaign. USA Today.

<http://onpolitics.usatoday.com/2014/02/18/billionaire-environmentalist-ramps-up-global-warming-campaign/>

Op/Ed: The Unscientific Consensus. Forbes Magazine.

<http://www.forbes.com/sites/alexepstein/2014/02/27/the-unscientific-consensus/>

Editorial: Climate Science, Inescapable Truths. The Economist Magazine.

<http://www.economist.com/blogs/democracyinamerica/2014/02/climate-science>

U-S Supreme Court Justices Question Obama Climate Change Regulations. Reuters.

<http://www.reuters.com/article/2014/02/24/us-usa-court-climate-idUSBREA1N06Q20140224>

Washington Coal Terminal to Get Extensive Review. Associated Press.

<http://www.komonews.com/news/local/Washington-coal-terminal-to-get-extensive-review-245240301.html>

Obama orders new efficiency for big trucks. New York Times, Feb. 18.

<http://www.nytimes.com/2014/02/19/us/politics/obama-to-request-new-rules-for-cutting-truck-pollution.html>

Fossil fuels

What's the Real Cost of Energy from Coal Plants? Olympian.

<http://www.theolympian.com/2014/02/21/2996946/whats-the-real-cost-of-energy.html>

Coal Quandary: Avista Uses Cheap Power, But Inslee Wary. Spokesman Review

<http://www.spokesman.com/stories/2014/feb/23/coal-quandary-avista-uses-cheap-power-but-inslee/>

Beginning of the End for Colstrip? GTH Energy & Natural Resources Law Blog.

<http://www.energynaturalresourceslaw.com/2014/02/beginning-of-the-end-for-colstrip-washington-utc-rejects-puget-sound-energys-analysis-of-coal-plant.html>

Low on Natural Gas, California Told to Power Down. Associated Press.

<http://news.yahoo.com/low-natural-gas-california-told-power-down-065659226.html>

Natural Gas Prices Break \$6.00 per MMBtu to Reach a Five-Year High. Market Realist.

<http://marketrealist.com/2014/02/natural-gas-prices-hit-5-year-high-since-end-2008/>

Renewable energy

Seattle Company Pursues Wind Energy in Ocean. Yakima Herald.

<http://www.yakimaherald.com/news/latestnews/1939089-8/seattle-company-pursues-wind-energy-in-ocean>

Oregon Energy Department Looking to Liquidate Collateral from Failed Solar Facility Loan. Oregonian.

http://www.oregonlive.com/business/index.ssf/2014/02/oregon_energy_department_looki.html

Report: California Solar Industry Jobs a Third of Nation's Total. San Jose Mercury News.

http://www.mercurynews.com/rss/ci_25115831?source=rss

Yakima Basin Snowpack Now Just Above Average. Yakima Herald.

<http://www.yakimaherald.com/news/latestlocalnews/1961248-8/yakima-basin-snowpack-now-just-above-average>

Oregon Energy Department Allows Transfer of \$10 Million Tax Credit for Solar Project – Again. Oregonian.

http://www.oregonlive.com/business/index.ssf/2014/02/oregon_energy_department_allow.html

Utility

Spokane Trash Burner Power Bill Dies in Washington State Legislature. Spokesman Review.

<http://www.spokesman.com/blogs/spincontrol/2014/feb/26/trash-burner-power-bill-dies/>

Utility Interests Push for Protectionism in State of Washington. Renewable Energy World.

<http://www.renewableenergyworld.com/rea/blog/post/2014/02/utility-interests-push-for-protectionism-in-state-of-washington?cmpid=rss>

Recent Reports on Energy and Climate Change

Tesoro Savage Petroleum Terminal submission to the Energy Facility Siting Evaluation Council
<http://www.efsec.wa.gov/Tesoro-Savage.shtml>

<http://www.iea.org/publications/freepublications/publication/name,43771,en.html>

Fifth Assessment Report. Intergovernmental Panel on Climate Change (IPCC) 2013.
<http://www.ipcc.ch/>

First academic study released in EDF's groundbreaking methane emissions series. Environmental Defense Fund, Sept 2013.
<http://www.edf.org/media/first-academic-study-released-edf%E2%80%99s-groundbreaking-methane-emissions-series>

World Bank: 4 Degrees - Turn Down the Heat. Potsdam Institute for Climate Impact Research and Climate Analytics. June 2013. http://www-wds.worldbank.org/external/default/WDSP/IB/2013/06/14/000445729_20130614145941/Rendered/PDF/784240WP0Full00D0CONF0to0June19090L.pdf

Long-term outlook for nuclear power depends on lifetime of plant, EIA, Apr. 2013
<http://www.eia.gov/todayinenergy/detail.cfm?id=10991>

Environmental Protection Agency 2012 Climate Change Indicators Report.
<http://www.epa.gov/climatechange/science/indicators/>

Report on the First Quadrennial Technology Review, US Dept. of Energy
<http://energy.gov/downloads/report-first-quadrennial-technology-review>

Understanding Household Preferences for Alternative- Fuel Vehicle Technologies. Mineta Transportation Institute. <http://www.transweb.sjsu.edu/project/2809.html>

Redrawing the Energy-Climate Map. International Energy Agency, June 2013.
http://www.iea.org/media/freepublications/executivesummary/WE02013_Climate_Excerpt_ES_WEB.pdf

Natural Gas Weekly Update: <http://www.eia.gov/naturalgas/weekly/?src=Natural-b1>

Monthly Energy Review, EIA : <http://www.eia.gov/totalenergy/data/monthly/>

Short-term Energy Outlook, EIA : <http://www.eia.gov/forecasts/steo/>

This Week in Petroleum. EIA,: <http://www.eia.gov/oog/info/twip/twip.asp>

River & Snow Pack Info

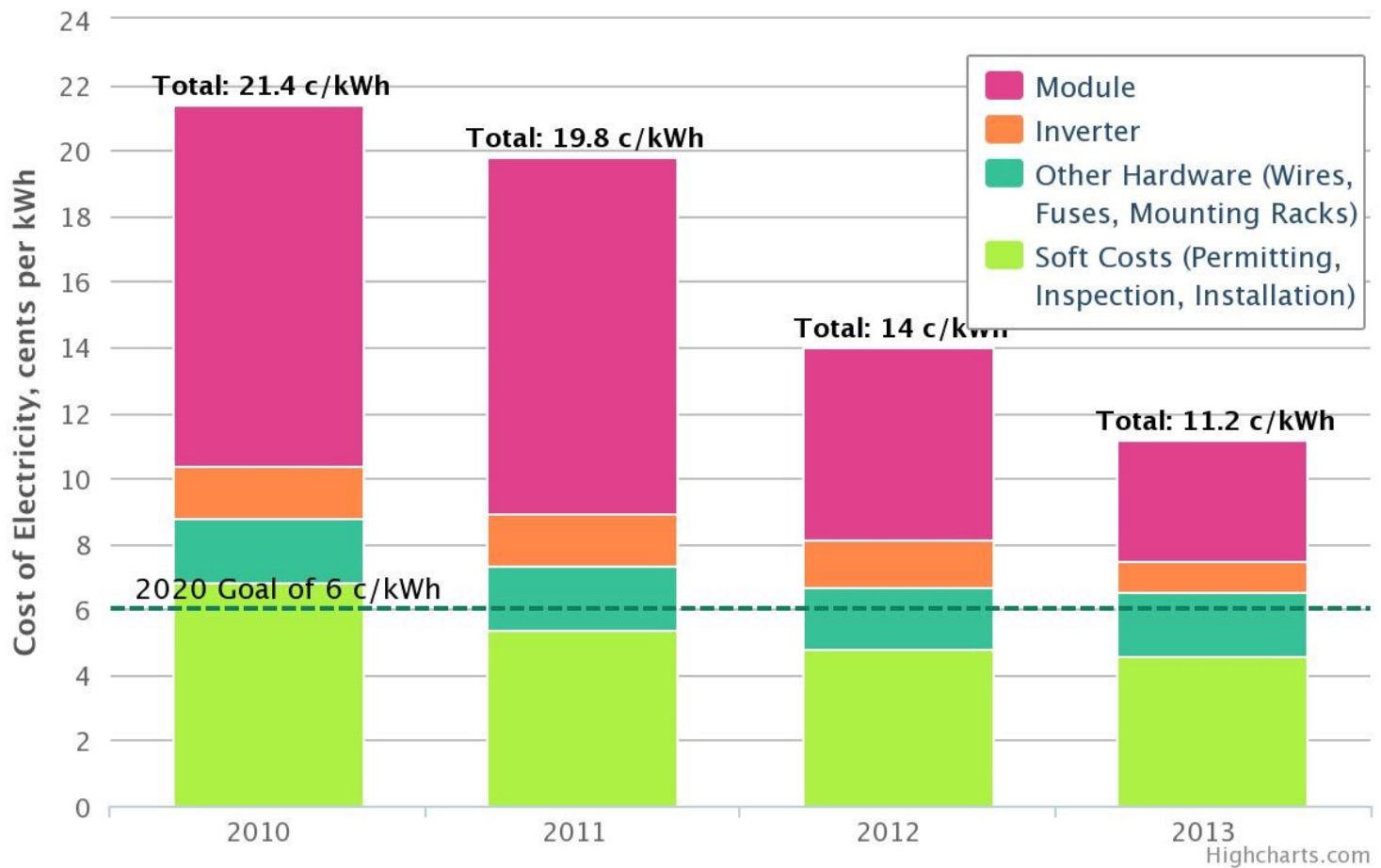
- Observed Feb. stream flow at The Dalles: 81% of average.
- Observed Feb. precipitation above The Dalles: 179% of average.
- Forecast runoff at The Dalles: 80 million acre-feet, 79% of 30-year average
- Forecast snowpack volume: Feb. 96% of average.
- Federal hydropower generation in Feb. : 7,235 aMW, 2009-2013 average: 8,494 aMW.
- Reservoir content (Libby, Hungry Horse, Grand Coulee, Dworshak): Jan. 72%, 5-year average: 70%.

Power Exchanged

Average flow of power during the last 30 days

- | | |
|----------------------------|---------|
| • California (exported to) | 1441 MW |
| • Canada (export to) | 232 MW |
| • Net power exported: | 1673 MW |

The Falling Price of Utility-Scale Solar Photovoltaic (PV) Projects



Data courtesy of National Renewable Energy Lab. Chart by Daniel Wood.

The U.S. solar industry is growing at a record-breaking pace, while becoming more affordable and accessible than ever before. The industry's forward progress comes in part thanks to support from the Energy Department's [SunShot Initiative](#).

The Energy Department announced that the U.S. solar industry is more than 60 percent of the way to achieving cost-competitive utility-scale solar photovoltaic (PV) electricity. In many parts of the country, solar electricity is already cost-competitive with traditional energy sources, including California, Hawaii and Minnesota.

Some ways SunShot is making an impact:

- Creating new industries with utility-scale PV
- Supporting job growth in the solar workforce
- Solar manufacturing



Department of Commerce
Innovation is in our nature.

Washington State Energy Office
1011 Plum St SE
Mail Stop: 42525
Olympia WA 98504-2525

Phone: 360.725.3112

Email: energy_policy@commerce.wa.gov